Weekly Report for 02/02/2015

APS Renewal and Upgrade

• Worked with COSMOTEC on fast kicker feedthrough and high voltage cable orders. (Chih-Yuan Yao)

• Participated in MAC review. Presented injector high charge plan. (Chih-Yuan Yao)

• Worked with DIAG group on BTX flag upgrade for fast kicker beam test. (Chih-Yuan Yao)

• Worked with PS and MD group to expand the PAR sextupole range to 10A. Tested fine during study. (Chih-Yuan Yao)

• Setup BPM new configuration so DIAG group can use some BPMs for high charge upgrade. (Chih-Yuan Yao)

• Discuss impedance simulation for the fast kicker with Ryan and Alexei. (Chih-Yuan Yao)

• Inquired and reviewed Danfysik power supply model for booster sextupole upgrade. (Chih-Yuan Yao)

MCR Operations

Booster Operations

• Investigated booster start up issues: (1) fluctuations in efficiency of booster low emittance lattice (2) low SR injection efficiency of high emittance lattice. Fixed (1) with injTune change and IK retiming. (Chih-Yuan Yao)

Linac Operations

• RG2 was found to have a bad thyratron in the kicker circuit; not having a working spare gun led to 8 hours of downtime. (Jeff Dooling)

• PS group replaced the thyratron (model E2V CX1154) with a faster model (1154C). The faster risetime and shorter pulsewidth led to a shorter window for beam extraction and reduced current. (Jeff Dooling)

• Found the kicker voltage had to be reduced to 15-16 kV in order to generate enough charge for top up (previous level was 22-24 kV). (Jeff Dooling)

• Found that the 3GX gun manufacturer AET recommended water flow rates of 0.1-0.2 lt/s or 1.58 to 3.17 gpm. RG2 is presently operating in excess of 4 gpm. (Jeff Dooling)

• Spoke with J. Gagliano (AES-MOM) regarding planned chemical analysis testing to be carried out on corrosion residue collected from 3G3. (Jeff Dooling)

• Requested that the MG300 (gen II) gun also be examined with a borescope and samples collected since its flow appears to be significantly restricted in this gun. (Jeff Dooling)

APS Machine Studies

Booster Studies

• Analyzed tune shift at booster injection and planned a constant tune QD/QF study (basically copy and scale the BM ramp into QD and QF current reference). (Chih-Yuan Yao)

PAR Studies

• Analyzed PAR harmonic cavity detuning character change with RF group engineers. (Chih-Yuan

Yao)

Linac Studies

- Requested the use of space in the ICR to run pcgun and linac studies. (Jeff Dooling)

APS Machine Research and Development

Storage Ring Research and Development

- Review final design of the S31 stripline. (Chih-Yuan Yao)

- Worked on MARS thin septum model. (Jeff Dooling)

Booster Research and Development

- Perform frequency map analysis of the booster with help from M. B. (Chih-Yuan Yao)

- Clarified booster BPM upgrade configuration with Diag and Ctl groups. (Chih-Yuan Yao)

Linac Research and Development

- Collected additional uv profiles in the laser room using the Coherent LaserCam HR in CW mode to verify camera operation in the tunnel last Friday. Also recorded IR compressor and virtual cathode (VC) images. (Jeff Dooling)

- Continued to work on laser focusing analysis. (Jeff Dooling)

APS Machine Software

Storage Ring

- modifed getSRtune to use previous measured tune as reference tune for Yipeng's tune scan experiment to be able to get the tune correctly, because the tune changed a lot, tune measurement could not get the correct tune if the actual tune is too far away from the reference tune. (Hairong Shang)

- updated the attenuator scan of P0FBScan, reduced the experiment steps from 128 to 32, ready for test. (Hairong Shang)

- modified SROrbitControllaw to set the interval to 2.5 seconds for plain corrector, and updates the interval when a configuration is selected. (Hairong Shang)

- added tuneRangeLow argument to APSMpMeasureP0FBTune and getP0FBTune o be able to change the lower tune plot range. (Hairong Shang)

- investigatd gap scan problem (called by Karen) which prevent operator operating gap scans, which was caused by the non-existing PVs of ID35 due to hardware change. Updated the gap scan monitor files and fixed the problem. (Hairong Shang)

Injectors

- investigated linac RF gun kicker waveform, compared with data collected in early 2000, and comparing with the scope -- found that the time units of RF gun kicker waveform was wrong, which should be micro-seconds instead of nano-second, modified the script (AcquireLinacWaveforms) to correct the time units, and redefined the units of Time of the existing data to micro-seconds. (Hairong Shang)

General

- fixed a typo of changeControlFile variable in ExperimentDesigner. (Hairong Shang)

Meetings, workshops, conferences, committees, LMS related, and reviews

- Reviewed a NIM paper. (Chih-Yuan Yao)